

# TROPICAL CYCLONE 01B

Tropical Cyclone 01B was the first of two cyclones to form in the North Indian Ocean during the Spring transition season. Although only reaching an intensity of 60 kt (31 m/s), it was one of the most noteworthy storms of 1985 due to the tremendous loss of life the cyclone caused in Bangladesh. An estimated 6,000 people died from the storm, with an additional 300,000 people left homeless. Most of the deaths were due to the storm surge, estimated at 15 ft (5 m), which completely inundated many of the low-lying islands (DeAngelis, 1985).

By late May, the Spring transition season was well underway in the North Indian Ocean. The southwest monsoon had moved into the southern Bay of Bengal and was creating a large amount of convection across the region. Late on the 20th of May, an area of convection began to show some organization in the southwest Bay of Bengal. This prompted the Signifi-

cant Tropical Weather Advisory (ABEH PGTW) to be reissued at 202030Z to include mention of this disturbance. During the following nine hours satellite imagery showed the disturbance continuing to improve in organization. As a result, the potential for significant tropical cyclone development was upgraded to "fair" on the 210600Z Significant Tropical Weather Advisory. Subsequent data continued to show slow development. An upper-level anticyclone was forming over the disturbance and a Dvorak analysis of satellite imagery estimated surface winds of 25 to 35 kt (13 to 18 m/s). This resulted in the issuance of a TCFA at 222100Z as the disturbance moved into the central Bay of Bengal.

Since the disturbance was developing in the monsoon trough (Figure 3-01B-1), there was some uncertainty as to whether a closed surface circ-

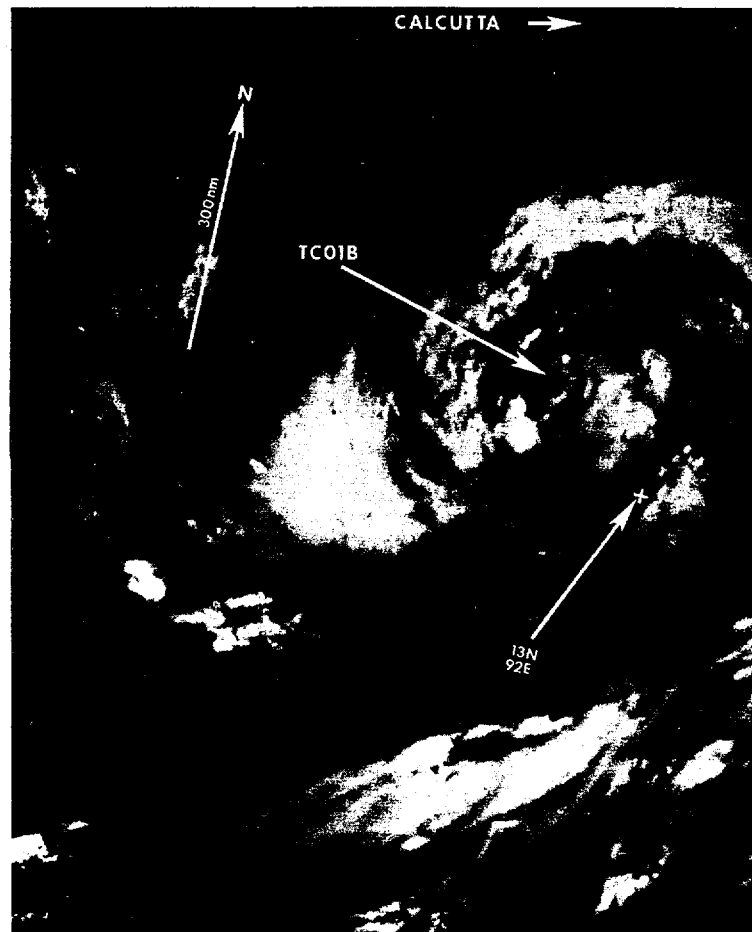


Figure 3-01B-1. The tropical disturbance, which became Tropical Cyclone 01B is consolidating in the Bay of Bengal. Estimated surface winds at this time are 25 kt (13 m/s) (220432Z May DMSP visual imagery).

lation existed or the disturbance was still a broad trough. Analysis performed by the Air Force Global Weather Center (AFGWC) on satellite imagery at 230442Z quickly settled the question by estimating surface winds of 45 kt (23 m/s), which supported a closed surface circulation. Based on this information, the first warning on Tropical Cyclone 01B was issued at 231200Z.

The forecast reasoning for Tropical Cyclone 01B centered on the presence of the monsoon trough. The initial forecast called for the storm to remain in the trough and move to the north-northeast. This forecast philosophy proved to be correct, and remained unchanged throughout the lifetime of Tropical Cyclone 01B. As a result, Bangladesh received nearly a 36 hour warning of the cyclones arrival. The only forecasting difficulty with Tropical Cyclone 01B was predicting its speed. Based on satellite fixes of the poorly defined circulation center from nighttime infrared imagery, the first three warnings indicated a slower forward speed than was actually taking place. This was corrected early on the 24th, when visual satellite imagery revealed the location of the low-level circulation center (Figure 3-01B-2).

Tropical Cyclone 01B continued to intensify, reaching a peak intensity of 60 kt (31 m/s) at 241800Z. This intensity was maintained until land-

fall at 250200Z just west of Chittagong, Bangladesh (WMO 41977). The cyclone lost organization fairly rapidly as it moved inland, but still brought torrential rains and extensive flooding to the higher elevations of Bangladesh and eastern India. The final warning was issued at 250600Z.

The fact that Bangladesh was given advance warning of the cyclones approach was responsible for the saving of thousands of lives. Tropical Cyclone 01B inflicted the greatest damage and death in the delta region of the Ganges. Several low-lying islands were completely submerged due to the 15 ft (5 m) storm surge which accompanied the storm at landfall. In several cases the only structures left standing were concrete multi-story shelters built after the 1970 cyclone (In November 1970, a tropical cyclone hit Bangladesh and killed an estimated 300,000 people). The islands of Sandwip, Urir Char and Bhola were among the most heavily damaged. Further inland, heavy rains caused severe flooding along Bangladesh's northeastern border with India. Overflowing rivers affected tens of thousands of people, with the Tripura and Manipur States of India being among the hardest hit regions.

Reference: DeAngelis, Dick, 1985: Under the Bangladesh Cyclone. Mariners Weather Log, Vol 29, No. 3, pp. 141-143.

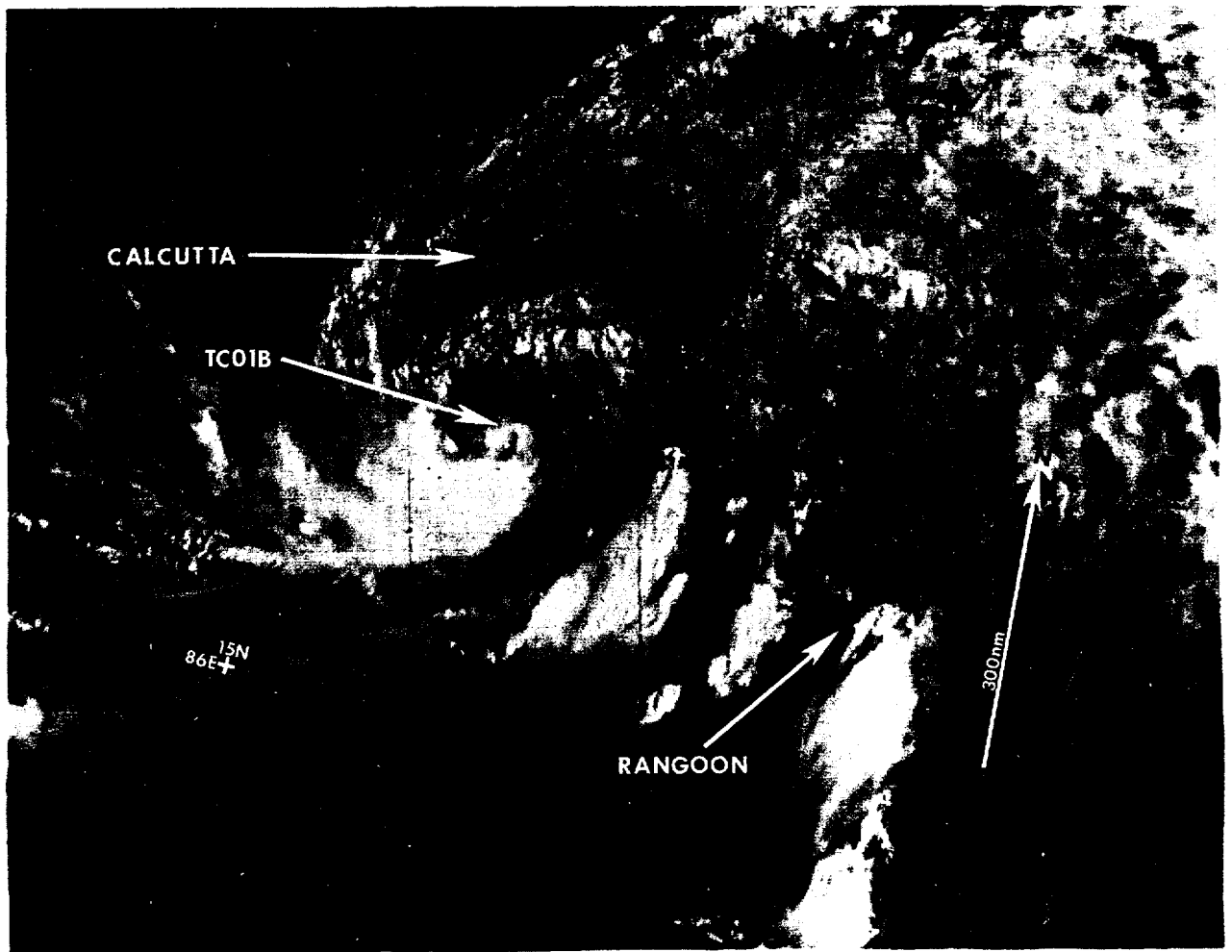


Figure 3-01B-2. Tropical Cyclone 01B less than one day prior to making landfall over Bangladesh (240351Z May DMSP Visual Imagery).